WE CLAIM:

1. A durable optical film comprising:

a polymerized optical film structure having a microstructured surface and a plurality of surface modified colloidal nanoparticles of silica, zirconia, or mixtures thereof.

2. The durable optical film according to claim 1, wherein the polymerized optical film structure has a plurality of ridges extending along a first surface.

3. The durable optical film according to claim 1, wherein the plurality of surface modified colloidal nanoparticles comprises having a particle size greater than 1 nm and less than 100 nm.

4. The durable optical film according to claim 1, wherein the nanoparticles further comprise titania, antimony oxides, alumina, tin oxides, mixed metal oxides thereof, or mixtures thereof.

5. The durable optical film according to claim 1, wherein the silica particle size is from 5 to 75 nm.

6. The durable optical film according to claim 1, wherein the silica particle size is from 10 to 30 nm.

7. The durable optical film according to claim 1, wherein the zirconia particle size is from 5 to 50 nm.

8. The durable optical film according to claim 1, wherein the zirconia particle size is from 5 to 15 nm.

9. The durable optical film according to claim 4, wherein the titania mixed metal oxide particle size is from 5 to 50 nm.

10. The durable optical film according to claim 4, wherein the titania mixed metal oxide particle size is from 5 to 15 nm.

11. The durable optical film according to claim 1, wherein the silica comprises 10 to 60 wt% of the microstructured surface.

12. The durable optical film according to claim 1, wherein the silica comprises 10 to 40 wt% of the microstructured surface.

13. The durable optical film according to claim 1, wherein the zirconia comprises 10 to 70 wt% of the microstructured surface.

14. The durable optical film according to claim 1, wherein the zirconia comprises 30 to 50 wt% of the microstructured surface.

15. The durable optical film according to claim 4, wherein the titania mixed metal oxide comprises 10 to 70 wt% of the microstructured surface.

16. The durable optical film according to claim 4, wherein the titania mixed metal oxide comprises 30 to 50 wt% of the microstructured surface.

17. The durable optical film according to claim 1, wherein the surface modified colloidal nanoparticles surface is modified with a surface modifying treatment agent capable of polymerizing with the polymerized optical film structure.

18. A brightness enhancing film comprising:

a brightness enhancing polymerized structure having a plurality of surface modified colloidal nanoparticles.

19. The brightness enhancing film according to claim 18, wherein the brightness enhancing polymerized structure has a microstructured surface.

20. The brightness enhancing film according to claim 18, wherein the brightness enhancing polymerized structure has a plurality of ridges extending along a first surface.

21. The brightness enhancing film according to claim 18, wherein the brightness enhancing polymerized structure has a prismatic microstructured surface.

22. The brightness enhancing film according to claim 18, wherein the plurality of surface modified colloidal nanoparticles comprises oxide particles having a particle size greater than 1 nm and less than 100 nm.

23. The brightness enhancing film according to claim 18, wherein the nanoparticles are silica, zirconia, titania, antimony oxides, alumina, tin oxides or mixtures thereof.

24. The brightness enhancing film according to claim 20, wherein the plurality of ridges are prism apexes.

25. The brightness enhancing film according to claim 24, wherein the prism apexes are rounded.

26. The brightness enhancing film according to claim 24, wherein the prism apexes are flat.

27. The brightness enhancing film according to claim 18, further comprising a base layer optically coupled to the polymerized structure.

28. The brightness enhancing film according to claim 27, wherein the base layer comprises styrene-acrylonitrile, cellulose triacetate, polymethyl methacrylate, polyester, polycarbonate, polyethylene naphthalate, copolymers of naphthalene dicarboxylic acids, or mixtures thereof.

29. A device comprising:

(a) a lighting device having a light-emitting surface; and

(b) a brightness enhancing film placed substantially parallel to said light-emitting surface, said brightness enhancing film comprising a polymerized structure having a plurality of surface modified colloidal nanoparticles.

30. The device according to claim 29, wherein the lighting device is a back-lit display device.

31. The device according to claim 29, wherein the lighting device is a back-lit liquid crystal display device.

32. The device according to claim 29, wherein the device is a handheld device.

33. The device according to claim 29, wherein the device is a computer display.

34. The device according to claim 29, wherein the device is a television.

35. A durable optical turning film comprising:

a first surface;

an array of prisms formed in the first surface, wherein the array of prisms has:

a plurality of first prisms, each of the first prisms having a first prism angular orientation with respect to a normal to the first surface;

a plurality of second prisms, each of the second prisms having a second prism angular orientation, different from the first angular orientation, with respect to the normal; and

a second surface opposing the first surface,

wherein said array of prisms having a plurality of surface modified colloidal nanoparticles.

36. An illumination device comprising:

(a) a lighting source having a lightguide having a light-emitting surface; and

(b) an optical turning film placed substantially parallel to said lightguide, said turning film having a first surface and a second surface and an array of prisms formed on the first surface, the turning film disposed with the first surface disposed in relation to the light-emitting surface such that light rays exiting the light-emmiting surface of the lightguide encounter the array of prisms and are reflected and refracted by the array of prisms such that the light rays exit the turning film via the second surface and substantially along a desired angular direction,

wherein the array of prisms includes a first plurality of prisms, each of the first plurality of prisms having a first prism configuration, and a second plurality of prisms each having a second prism configuration, different than the first prism configuration, the first prism configuration and the second prism configuration being such the light rays exiting the second surface correspond to a substantially uniform sampling of the light rays entering the lightguide and said optical turning film comprising a plurality of surface modified colloidal nanoparticles.

37. A retro-reflective film comprising:

a retro-reflective polymerized structure having a plurality of surface modified colloidal nanoparticles.

38. The retro-reflective film according to claim 37, wherein the retro-reflective polymerized structure has a microstructured surface.

39. The retro-reflective film according to claim 37, wherein the retro-reflective polymerized structure has a plurality of ridges extending along a first surface.

40. The retro-reflective film according to claim 37, wherein the retro-reflective polymerized structure has a prismatic microstructured surface.

41. The retro-reflective film according to claim 37, wherein the plurality of surface modified colloidal nanoparticles comprises oxide particles having a particle size greater than 1 nm and less than 100 nm.

42. The retro-reflective film according to claim 37, wherein the nanoparticles are silica, zirconia, titania, antimony oxides, alumina, tin oxides or mixtures thereof.

43. The retro-reflective film according to claim 39, wherein the plurality of ridges are prism apexes.

44. The retro-reflective film according to claim 38, wherein the microstructured surface is a microstructured corner-cube array.

45. A durable optical element comprising:

a polymerized optical element structure having microstructured surface and a plurality of surface modified colloidal nanoparticles of silica, zirconia, or mixtures thereof.

46. The durable optical element according to claim 45, wherein wherein the nanoparticles further comprise titania, antimony oxides, alumina, tin oxides, mixed metal oxides thereof, or mixtures thereof.

47. The durable optical element according to claim 45, wherein the surface modified colloidal nanoparticles surface is modified with a surface modifying

treatment agent capable of polymerizing with the polymerized optical element structure.

48. The durable optical element according to claim 45, wherein the polymerized optical element structure has a prismatic microstructured surface.

49. The durable optical element according to claim 45, wherein the prismatic microstructured surface has rounded apexes.

50. The durable optical element according to claim 49, wherein the prismatic microstructured surface has flattened apexes.